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| 10/520,238      | 12/30/2004  | Willem J. Quadakkers | 2002P02127WOUS      | 5095             |

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Siemens Corporation  
Intellectual Property Department  
170 Wood Avenue South  
Iselin, NJ 08830

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| EXAMINER |
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BALDWIN, GORDON

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| ART UNIT | PAPER NUMBER |
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1775

DATE MAILED: 04/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/520,238

Applicant(s)

QUADAKKERS ET AL.

Examiner

Gordon R. Baldwin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 13-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 20041230.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claim 17** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear how the protective layer would be outside the intermediate and outer layer since the intermediate and the outer layers are considered to be the protective layer.

### ***Double Patenting***

**Claim 22** objected to under 37 CFR 1.75 as being a substantial duplicate of **claim 24**. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 13-16, 18-21 and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lau (Pub. Date 2002/0098294 A1).**

**Consider claim 13**, Lau teaches a substrate, one forming a super-alloy material (Para. 006), with a two layered arrangement on top of the substrate. (Para. 0007-0008) The first layer (or primary layer) is taught to comprise an alloy of the formula MCrAlY, where M is selected from the group consisting of Fe, Ni, Co. (Para. 0007) and the secondary layer, that goes over the primary layer, comprises Nickel, Cobalt and Chromium with 30 wt % of Aluminum. (Para. 0076) While the secondary layer of Lau does not exactly teach the percentage of the applicant the only difference between the applicant and Lau is that Lau does not teach the exact same proportions as recited in the instant claims.

However, one of ordinary skill in the art at the time the invention was made would have considered the invention to be obvious, because the compositional proportions taught by Lau overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in the prior art reference, particularly in view of the fact that;

“The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages”, In re Peterson 65 USPQ2d 1379 (CAFC 2003).

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Also, In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

Additionally, Lau teaches that the secondary layer is in the beta phase of NiAl.  
(Para. 0024)

**Consider claim 14**, since Lau does not mention that the Chromium or Cobalt of the secondary (or outer layer) destroys the beta phase of NiAl, they are considered not to destroy the beta phase of NiAl.

**Consider claim 15**, Lau teaches the use of two separate layer in the protective layer structure. (Para. 0007 and 0008)

**Consider claim 16**, Lau teaches that the coatings are to be used in turbine engine components. (Para. 0006)

**Consider claim 18**, Lau teaches that the primary or intermediate layer has a greater thickness than the outer or secondary layer. (Claims 20 and 21)

**Consider claim 19**, Lau teaches that the primary layer can have amounts of Co, Cr, Al, Y and Ni within the percentages taught by the applicant. (Para. 0020) It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges.

**Consider claim 20**, Lau teaches that the outer or secondary layer can contain silicon. (Para. 0016)

**Consider claim 21**, Lau teaches that the secondary or outer surface can contain 0.2 wt % Si. (Para. 0076)

**Consider claim 30**, Lau teaches a coating for a turbine engine with a substrate, one forming a super-alloy material (Para. 006), with a two layered arrangement on top of the substrate. (Para. 0007-0008) The first layer (or primary layer) is taught to comprise an alloy of the formula  $M\text{CrAlY}$ , where M is selected from the group consisting of Fe, Ni, Co. (Para. 0007) and the secondary layer, that goes over the primary layer, comprises Nickel, Cobalt and Chromium with 30 wt % of Aluminum. (Para. 0076) Additionally, Lau teaches that the secondary layer is in the beta phase of NiAl. (Para. 0024)

**Consider claim 31**, Lau teaches that the primary layer can have amounts of Co, Cr, Al, Y and Ni within the percentages taught by the applicant. (Para. 0020) It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges.

**Claims 22, 24, 25, 28, 29 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lau (Pub. Date 2002/0098294 A1) in further view of Khan (Pub. No. 2002/0187336 A1).**

**Consider claim 22 and 24**, Lau teaches the oxidation resistant coatings except for the use of Hf, Zr, La, Ce or other Lanthanide group members. However Khan teaches that its coatings (Para 0020) for turbine engine components can contain Zr and/or Hf. (Para. 0015) It would have been obvious to a person of ordinary skill in the

art at the time of the invention to combine the coatings of Lau with the coating of Khan to assist in retaining the alumina forming capabilities of the coatings. (Khan Para. 0018)

Additionally, claims 22 and 24 are rejected due to no effective amount of the Lanthanide groups members being claimed. It is not considered patentably distinct to claim elements and not give any amounts to be used, since one molecule of the claimed group intermixed with the coating would not affect the properties of the coating.

**Consider claim 25**, Khan does teach the use of Zr and/or Hf. (Para. 0015) Khan does not exactly teach the percentage taught by the applicant of less than one percent but the range taught in Khan does overlap the range taught by the applicant. (Para. 0015) One of ordinary skill in the art at the time the invention was made would have considered the invention to be obvious, because the compositional proportions taught by Khan overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in the prior art reference, particularly in view of the fact that;

“The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages”, In re Peterson 65 USPQ2d 1379 (CAFC 2003).

Also, In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

**Consider claim 28**, Khan teaches that the TBC thermal barrier coating is to be laid over the bond coating. (Para. 0005)

**Consider claim 29**, Khan teaches the use of a thermal barrier coating however the heat treatment prior to applying the thermal barrier coating in a low oxygen pressure range is considered to be a product –by-process and even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process., (In re Thorpe, 227 USPQ 964,966). Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product (*In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983), MPEP 2113).

**Consider claim 32**, Lau teaches that the primary layer can have amounts of Co, Cr, Al, Y and Ni within the percentages taught by the applicant. (Para. 0020) It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges.

**Claims 26 -29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lau (Pub. Date 2002/0098294 A1) in further view of Wadley (Pub. No. 2005/0287296 A1)**

**Consider claim 26 and 27**, Lau does not teach the use of Ti or Sc in its coating however, Wadley teaches the use of Sc and/or Ti in its teaching of an additive for a bond coating. (Para. 0052-0054 or claims 1 and 2) It would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the coatings of Lau with the coating additive in the dispersoids of Wadley to get a microstructure necessary to produce an effective coating. (Para. 0053)

**Consider claim 28**, Wadley teaches the use of a thermal barrier coating on the outer layer of its coating. (Claim 1 and Para. 0005 and 0052)

**Consider claim 29**, Wadley teaches the use of a thermal barrier coating however the heat treatment prior to applying the thermal barrier coating in a low oxygen pressure range is considered to be a product –by-process and even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process., (In re Thorpe, 227 USPQ 964,966). Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious

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different between the claimed product and the prior art product (*In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983), MPEP 2113).

***Response to Arguments***

Applicant's arguments with respect to claims 13-32 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments in regard to the 112(2) rejections of claims 22, 23 and 32 are withdrawn due to the amendment sent on 2/28/2006.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon R. Baldwin whose telephone number is (571)272-5166. The examiner can normally be reached on M-F 7:45-5:15.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GRB



ARCHENE TURNER  
PRIMARY EXAMINER